CANADA-QUEBEC AGREEMENT
ON WATER QUALITY MONITORING

By

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SUMMARY

Claude Langlois and Lucien N Martel, 1986, The Canada-Quebec agreement on water quality monitoring, Environment Canada, Inland Waters Directorate, Quebec Region, Longueuil

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In March 1982, the federal government instructed Environment Canada to negotiate agreements with the provinces with a view to co-ordinating work on the monitoring of surface water quality in Canada. After a great many negotiating sessions in 1982 and 1983, the first federal-provincial agreement on water quality was signed on May 14, 1984 by John Caccia, federal Minister of the Environment and Adrien Ouellet, Quebec Minister of the Environment. The agreement was made retroactive to April 1, 1983 and the parties undertook to co-ordinate their water quality monitoring activities in the Province of Quebec.

Since this was to be the first federal-provincial agreement of its kind, the negotiating criteria and guidelines were developed, amended and reworked throughout the discussions. It soon became evident that sampling stations should be selected in terms of drainage basins and that they should be of two kinds: index stations and recurrent stations.

The province was divided into three areas of interest, each of which corresponded to a station category: federally operated, jointly operated, or provincially operated.

The parties to the agreement decided that, in view of their respective fields of expertise, the province would operate the joint stations, with the federal government paying 50% of the operating costs. Such stations are located on at least one river in each of the eight hydrographic regions in Quebec south of the 55th parallel.

Water Quality Branch, which was already operating a major network of stations on the St Lawrence and Quebec-US transboundary rivers, widened the scope of its program in certain rivers in New Quebec north of the 55th parallel. These stations remained a federal concern, as did those covered by the LRTAP program. Together, they constituted the federal stations.

In 1984/85, the two governments assigned more than $1 million to monitoring water quality in Quebec, with almost 80% of that sum being allocated to the general monitoring of the St Lawrence, rivers and lakes.

On March 29, 1985, the Quebec Environment Minister asked for the agreement to be renegotiated in order to reflect the new priority programs of his Department. These included water treatment, the acidification of the aquatic environment by acid precipitation, and the monitoring of toxic substances in the aquatic environment. Task forces and the negotiating committee met many times between May 1985 and March 1986 and a new agreement was submitted by the administrators to their respective ministers. The principles of the agreement remained the same but the monitoring programs were amended, particularly the provisions relating to the federal-provincial and provincial stations.

Under the new agreement, the two governments will spend more than $1.4 million on water quality monitoring in 1986/87. Almost half of that sum will be allocated to the toxic substance monitoring program, which, in 1986/87 will, for the first time, apply to the federal-provincial stations on the St Lawrence operated by Environment Canada. The frequency of sampling at river stations has been halved, while the network of lake stations operated by the province has been abolished; instead, recurrent samples will be taken at stations in one hydrographic region. In 1986/87, for example, a total of 271 lakes in the Mauricie region will be sampled once. Again for the first time, acid precipitation is included in the agreement. Although federal funding will not be provided, the activities of the two levels of government in this field will be co-ordinated.

The new agreement thus means that programs will be geared more to toxic substance and acid precipitation monitoring, the very areas where information on surface water quality is most lacking in Quebec, than to water quality in general.

INTRODUCTION

Toward the end of the 70s, concern was mounting about surface water quality in Canada. Eutrophication was no longer the only problem facing the country's rivers and lakes; now they also had to contend with toxic substances and the long range transport of airborne pollutants. Numerous studies in Canada and the US, chiefly in the Great Lakes region, showed that several hundred potentially toxic organic substances were present in water, sediment and fish. Other studies by Norwegian, Swedish, Canadian and US scientists showed that the aquatic environment was extremely vulnerable to the effects of acid precipitation.

As the threats to water quality grew, so did Canada's need for an effective monitoring system. In September 1980, Inland Waters Directorate of Environment Canada set up a task force to examine the possibility of negotiating water quality monitoring agreements with the provinces. Similar agreements on water resource monitoring (levels, flow rates and so on) have been in effect since 1975. In March 1982, Treasury Board authorized the Department of the Environment to begin talks with the provinces on a shared cost or shared work basis.

Negotiations with Quebec began in July 1982, and the first federal-provincial water quality agreement, which was made retroactive to April 1, 1983, was signed by the Environment Ministers of the two governments in May 1984. The first annual report (1983/84) appeared in November 1984 and was submitted to the administrators of the agreement.

ADMINISTRATION OF THE AGREEMENT

The purpose of the agreement is essentially to co-ordinate the work of the federal and provincial governments on water quality monitoring. To that end, the objectives of the agreement are:

1. to achieve a long-term commitment for the acquisition of water quality data;
2. to obtain comparable and reliable data;
3. to disseminate information to agencies and the general public.

The agreement is managed by two administrators appointed by the respective Ministers and a four-member Co-ordinating Committee appointed by the administrators. Environment Canada has provided the Secretariat since the agreement came into effect.

OPERATION OF THE AGREEMENT

Stations fall into three categories for the purposes of the agreement: federal, federal-provincial and provincial (see table 2). Only federal-provincial stations, the operation of which is deemed essential by the two parties, are financed jointly on a 50:50 basis. Operating costs for the other two station categories are the responsibility of the government in question. The activities of all three categories are co-ordinated, however, since they are covered by the agreement.

In the May 1984 agreement, the negotiators designated 17 watersheds as being of federal-provincial interest since they met a number of selection criteria (see table 3). All stations located in those watersheds automatically fell into the federal-provincial category and were operated on a shared cost basis. The other stations were operated either by the federal or provincial government and designated accordingly. In 1985/86, samples were taken at a total of 293 stations (see table 4) in the various hydrographic regions of Quebec (see figures 1 and 2); 95 of them were federal-provincial stations.

The 1984/85 annual report submitted to the administrators on October 1, 1985 showed that over $1 million had been allocated by the two governments to water quality monitoring (see table 5). More than 70% of that amount went to the three general quality monitoring systems (rivers, lakes, and the St Lawrence) and less than 10% to the monitoring of toxic substances.

RENEGOTIATION OF AGREEMENT

On March 29, 1985, the Quebec Environment Minister requested that the agreement be renegotiated to take into account the new priority programs of his Department. The said programs dealt chiefly with water treatment, acidification of the aquatic environment by acid precipitation, and the monitoring of toxic substances in the aquatic environment. Joint task forces were set up in October 1985 to prepare programs of work reflecting the priorities of the two departments in water quality, acid precipitation, and toxic substances. After a number of meetings by the task forces and the Co-ordinating Committee, the administrators gave their approval in March 1986 to an amended text and a program of work for 1986/87. Final Ministerial approval is still pending.

The mandate, objectives and administrative procedures of the agreement are unchanged. The only alteration in the financial provisions is that fringe benefits are now included as an eligible expenditure when calculating shared costs.

AMENDED AGREEMENT

Significant changes have been made to the programs of work included in the agreement. All monitoring activities by the Inland Waters Directorate of Environment Canada and the water survey branch of Environment Quebec (DRA) are now to be co-ordinated. The St Lawrence, like its main tributaries, has been designated a watershed of federal-provincial interest. The number of such watersheds has been increased to 30 but there are fewer stations in each. For the first time in Quebec, certain federal-provincial stations (toxic substances in the St Lawrence) are to be operated by the federal government. Also for the first time, work in the area of acid precipitation is included in the agreement; although no provision is made for a federal financial contribution, the activities of the two governments will be co-ordinated.

The major changes affecting the networks of sampling stations (tables 6, 7 and 8) are: the abolition of the lake network, which will be replaced by a series of recurrent samples from one hydrographic region; a reduction in the frequency of sampling and the number of river stations; and increased activity in the field of toxic substances, with the two governments attempting to synchronize their studies of sections of the St Lawrence and its tributaries. Figures 3 and 4 show the location of the stations sampled in 1986/87, and table 9 lists the parameters mesured for toxic substances in fish and/or sediment.

CONCLUSION

Under the new agreement, the two governments will allocate more than $1.4 million to water quality monitoring in 1986/87 (see table 10). Almost half of that amount will be assigned to the toxic substance monitoring program, reflecting the priorities of the two governments. The dissemination of toxic substances is the area where information on surface water quality is most lacking in Quebec.

Shared costs for federal-provincial stations will amount to approximately $490,000, or almost one-third of the total. Thus, it is the co-ordination of activities much more than the sharing of costs that makes federal-provincial agreements scientifically and technically desirable.

TABLE 1

ADMINISTRATION

ADMINISTRATORS	1 federal	Director, Inland Waters Directorate, Quebec Region
	1 provincial	Director, DRA
CO-ORDINATING COMMITTEE		
	2 federal	1 from Headquarters 1 from Regional Office
	2 provincial	Headquarters
SECRETARIAT		
	To October 1984	Inland Waters Directorate, Headquarters (Ottawa)
	Thereafter	Inland Waters Directorate, Regional Office (Longueuil)

TABLE 2

STATION CATEGORIES

FEDERAL

- Stations required for federal programs (Fisheries Act, Canada Water Act)

- Necessary stations for transboundary rivers, federal territory and international commitments (the St Lawrence, LRTAP program)

FEDERAL-PROVINCIAL

- Stations of joint interest, the operation of which is deemed essential by the two parties

PROVINCIAL

- Stations required for provincial programs

TABLE 3

WATERSHED SELECTION CRITERIA

(a) Geographic zones

1. Hydrographic regions

All hydrographic regions should be represented (10 in Quebec).

2. Natural or physiographic regions

The most important natural regions should be represented (Quebec Department of Recreation, Fish and Game 1981).

(b) Numerical indices

Area of watershed
Population of watershed
Average flow at mouth
Average slope of watershed

(c) Existence or non-existence of specific uses and effect on water

Industrial activity, mining
Built-up areas
Hydro-electric dams, river transport
Agriculture, timber driving
Commercial fisheries

TABLE 4

SAMPLING STATIONS 1985/86

FEDERAL	
St Lawrence (water)	45
Transboundary (water)	12
New Quebec (water)	15
LRTAP (water)	35
	107
FEDERAL-PROVINCIAL	
Lakes (water)	24
Rivers (water)	51
Toxic substances (water, fish, sediment)	20
	95
PROVINCIAL	
Lakes (water)	0
Rivers (water)	83
Toxic substances (water, fish, sediment)	8
	91
Total	293

TABLE 5

OPERATING RESULTS
ANNUAL REPORT 1984/85

	OPERATING COSTS ($'000)	
	TOTAL	FEDERAL CONTRIBUTION
FEDERAL STATIONS		
St Lawrence	195,2	N/A
Transboundary	18,5	N/A
New Quebec	12,9	N/A
LRTAP	97,1	N/A
Sub-total	323,7	N/A
FEDERAL-PROVINCIAL STATIONS		
Lakes	49,0	24,5
Rivers	178,2	89,1
Toxic substances	67,3	33,6
Sub-total	294,5	147,2
PROVINCIAL STATIONS		
Lakes	117,5	N/A
Rivers	252,8	N/A
Toxic substances	15,3	N/A
Sub-total	385,6	N/A
GRAND TOTAL	1003,8	

TABLE 6

WATER QUALITY

RESPONSABILITY	PROJECT	NO OF STATIONS	NO OF SAMPLES
Provincial	New Quebec	15	30
	Follow-up action	40	240
Federal-provincial	Rivers	41	533
	Lakes	271	271
Federal	New Quebec	(15)	(30)
	St Lawrence	54	216
	Transboundary	12	48

TABLE 7

TOXIC SUBSTANCES

RESPONSABILITY	PROJECT	NO OF STATIONS	NO OF SAMPLES
Provincial	Watersheds		
	Fish flesh	14	112
	Juvenile fish	14	42
	Sediment	14	14
Federal-provincial	St Lawrence		
	Fish flesh	5	40
	Juvenile fish	5	50
	Bottom sediment	5	5
Federal	St Lawrence		
	Bottom sediment	35	35
	Juvenile fish	5	50
	Elutriate	20	50
	Suspended sediment	6	12
Federal-provincial	Watersheds		
	Fish flesh	36	288
	Juvenile fish	36	108
	Bottom sediment	36	36

TABLE 8

ACID PRECIPITATION

RESPONSABILITY	PROJECT	NO OF STATIONS	NO OF SAMPLES
Provincial	Piscifauna inventory of Outaouais	40	40
Federal-provincial	None		
Federal	Existing LRTAP system	35	118
	Temiskaming extension	14	52
	Lake Laflamme calibrated watershed	2	104

TABLE 9

TOXIC SUBSTANCE PARAMETERS

(Fish and/or sediment)

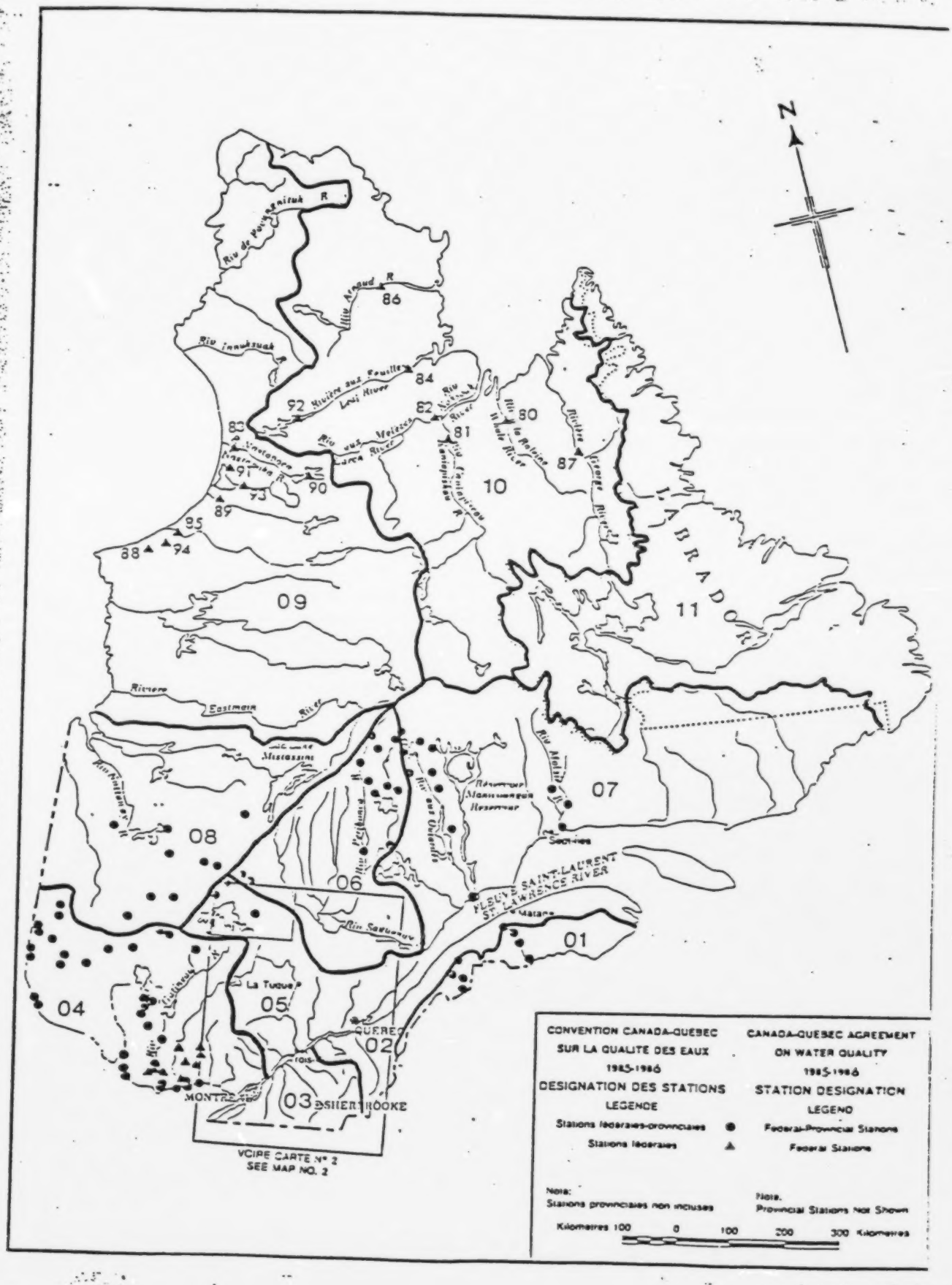
METALS	arsenic, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, vanadium, zinc
NON-METALS	fluorine
POLYCYCLIC AROMATIC HYDROCARBONS (PAH)	acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo (b)fluoranthene, benzo(k)fluoranthene benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno (1,2,3-c,d)pyrene, naphthalene, phenathrene, pyrene
ORGANOCHLORINATED PESTICIDES	aldrin, DDD, DDE, DDT, dieldrin, endrin, heptachlor, heptachlor epoxide, hexachlorobenzene, lindane, methoxychlor, mirex
POLYCHLORINATED BIPHENYLS (PCBs)	
CHLOROPHENOLS	hexachlorophenol, pentachlorophenol, tetrachlorophenol, trichlorophenol
CHLOROBENZENES	dichlorobenzene, hexachlorobenzene, monochlorobenzene, pentachlorobenzene tetrachlorobenzene, trichlorobenzene
HALOFORMS	chloroform, carbon tetrachloride
GREASE, GRANULOMETRY, HUMIDITY	

TABLE 10

PROJECTED EXPENDITURE 1986/87 (March 17, 1986)

	FEDERAL	FEDERAL / PROVINCIAL		PROVINCIAL	TOTAL	CONTRIBUTION FEDERAL
1- Water quality	191,8		189,3	72,1	453,2	94,6
2- Toxic substances	227,1	51,5	254,2	97,3	630,1	101,3
3- Acid precipitation	197,8			123,5	321,3	AUCUNE
TOTAL	616,7	51,5	443,5	292,9	1 404,6	195,9
Breakdown	668,2		736,4		1 404,6	195,9

FIGURE 1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Rivière aux Feuilles
Leaf River
Rivière aux Mélèzes
Larch River
Rivière Eastmain
Eastmain River
Rivière Mistassini
Lac Mistassini
Rivière Nottaway
Rivière Broadback
Rivière Rupert
Rivière Harricana
Rivière Moisie
Rivière Saguenay
Rivière Ashuapmushuan
Rivière Péribonka
Rivière Manicouagan
Réservoir Manicouagan
Réservoir Daniel-Johnson
Rivière Betsiamites
Rivière aux Outardes
Rivière Matamek
Rivière Godbout
Rivière Portneuf
Rivière Malbaie
Rivière Ste-Marguerite
Rivière Moisie
Rivière Natashquan
Rivière Romaine
Rivière Hamilton
Rivière Koroc
Rivière George
Rivière Arnaud
Rivière Innuksuak
Rivière de Povungnituk
Rivière Kogaluk
Rivière Caniapiscau
Rivière Nastapoka
Rivière Koksoak
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Rivière Koksoak
Rivière aux Feuilles
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Rivière Kaniapiskau
FLEUVE SAINT-LAURENT
ST. LAWRENCE RIVER
QUÉBEC
MONTRÉAL
SHERBROOKE
La Tuque
VOIRE CARTE N° 2
SEE MAP NO. 2
CONVENTION CANADA-QUÉBEC
SUR LA QUALITÉ DES EAUX
1985-1986
DÉSIGNATION DES STATIONS
LÉGENDE
Stations fédérales-provinciales
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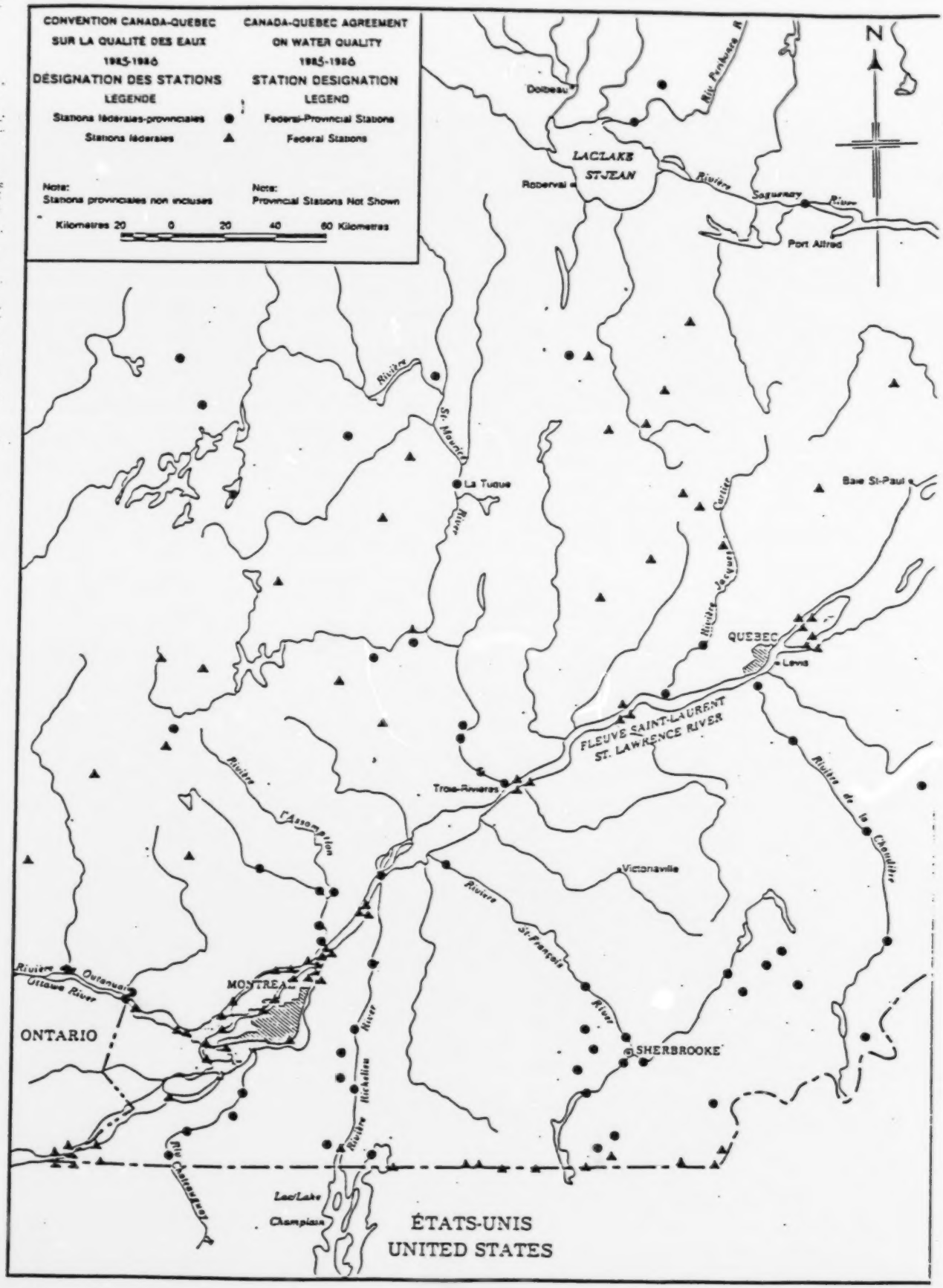
Note:
Stations provinciales non incluses
CANADA-QUEBEC AGREEMENT
ON WATER QUALITY
1985-1986
STATION DESIGNATION
LEGEND
Federal-Provincial Stations
Federal Stations
Note:
Provincial Stations Not Shown
Kilometres 100 0 100 200 300 Kilometres

FIGURE 2: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Kilometres 20 0 20 40 60 Kilometres
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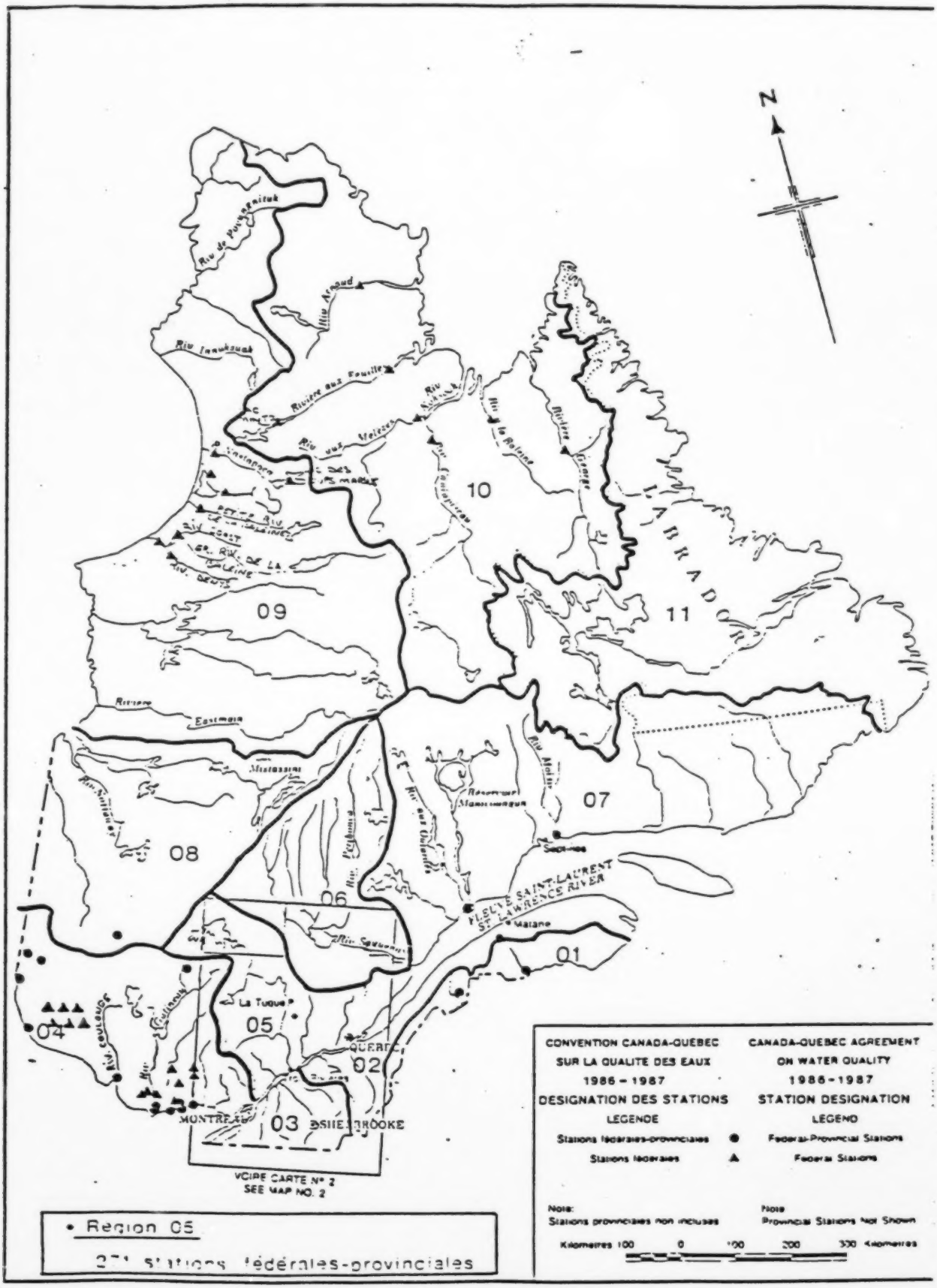
LAC LAKE ST JEAN
Roberval
Rivière Saguenay River
Port Alfred
Rivière St. Maurice River
La Tuque
Baie St-Paul
Rivière Jacques Cartier
QUEBEC
Lévis
FLEUVE SAINT-LAURENT
ST. LAWRENCE RIVER
Trois-Rivières
Rivière L'Assomption
Rivière de la Chaudière
Victoriaville
Rivière St-François River
Rivière Outaouais
Ottawa River
MONTREAL
ONTARIO
Rivière Richelieu River
SHERBROOKE
Rivière Châteauguay
Lac/Lake Champlain
ÉTATS-UNIS
UNITED STATES

FIGURE 3: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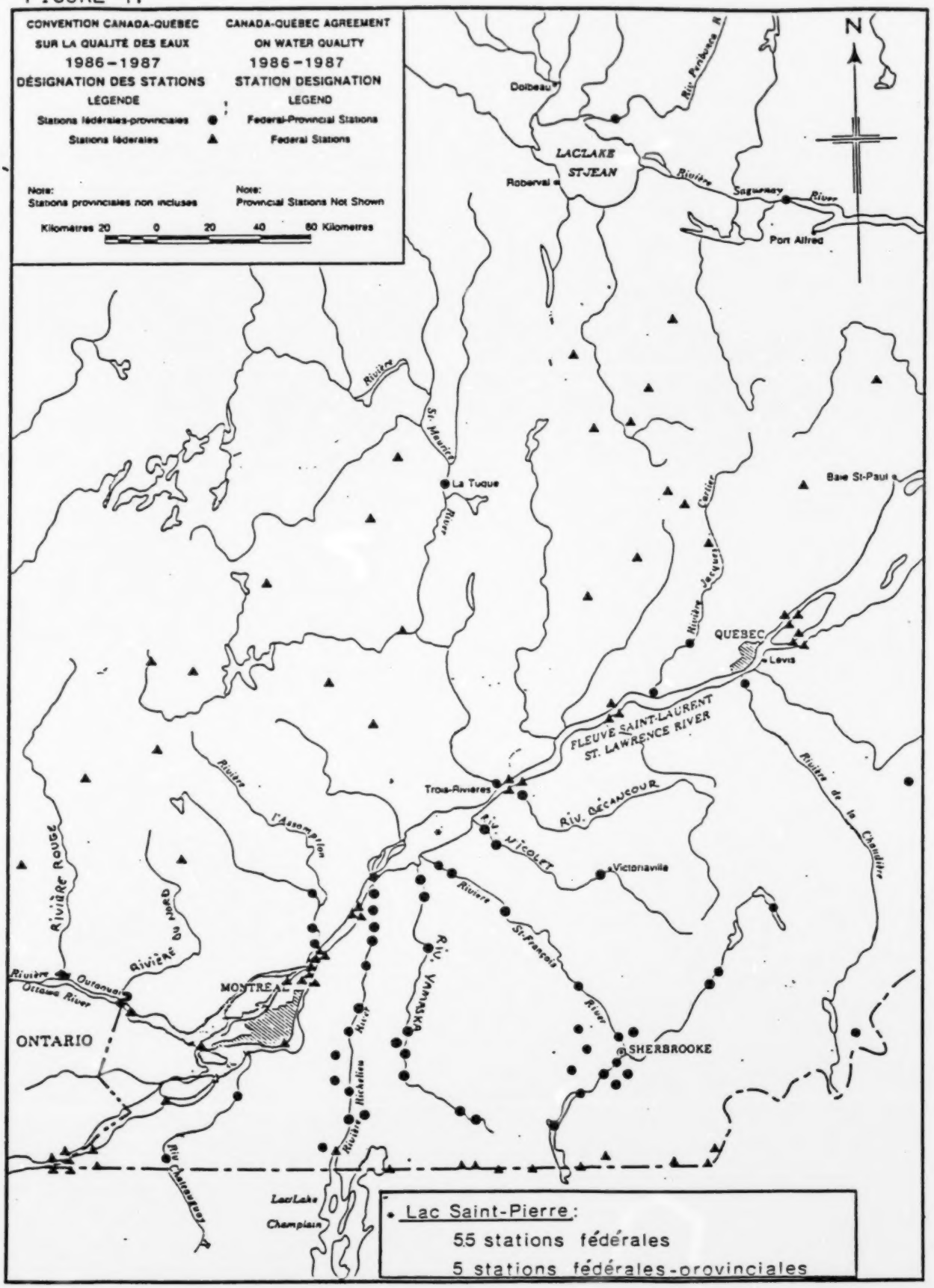
Rivière Richelieu
Rivière Châteauguay
Rivière Yamaska
Rivière Saint-François
Rivière Nicolet
Rivière Chaudière
Rivière Etchemin
Rivière Matane
Rivière Ouelle
Rivière Trois-Pistoles
Rivière Rimouski
Rivière Matapédia
Rivière Restigouche
Rivière Saint-Jean
Rivière Saint-Maurice

FIGURE 4: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RIV. DÉCARIE
RIV. NICOLET
Victoriaville
Rivière l'Assomption
RIVIÈRE ROUGE
RIVIÈRE DU NORD
Rivière Outaouais
Ottawa River
MONTRÉAL
ONTARIO
Rivière St-François River
RIV. YAMASKA
SHERBROOKE
Rivière Richelieu River
Rivière Chateauguay
Lac Lake Champlain
• Lac Saint-Pierre:
55 stations fédérales
5 stations fédérales-provinciales